

CALIFORNIA ENERGY COMMISSION

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**STATE OF CALIFORNIA
ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION**

Docket No.: 99-CEO-VOL-1

**Staff Proposed Outline:
2002-2004 California's Electricity
Supply Outlook**

STAFF PRESENTATION

Electricity and Natural Gas Committee Workshop

September 21, 2001



California's Electricity Supply Outlook 2002 - 2004

**Presentation for the Energy Commission's
Electricity & Natural Gas Committee Workshop**

September 21, 2001

Richard Grix



Overview

- **What was the outlook for the summer of 2001?**
- **What were the goals for new generation and conservation/demand response programs?**
- **How well did we do?**
- **Outlook for next summer and beyond?**



CEC February Outlook for the Summer of 2001

Tem perature Probability	1-in-10
Peak Dem and + 7% Operating Reserve	61,125
Firm In-S tate Generating Capacity	54,375
Firm Im ports	4,841
Available Generation Capacity	59,216
Estim ated Outages	3,050
Dependable Generation Capacity	56,166
Surplus / Deficit	-4,959



Bridging the Gap

- **Generation**

- Increased output from existing plants
- Accelerate construction of approved plants
- Develop new peaking and renewable plants

- **Goal 5,067 MW**

- **Conservation**

- State, Fed. & Local Govt. emergency load reduction
- Augment existing utility conservation programs
- New conservation programs
 - Demand responsive energy systems
 - Energy efficiency
- Demand responsive load
- Public outreach, 20/20

- **Goal 6,244 MW**



Results as of August 1st

- **Generation**

- Increased output from existing plants

505 MW

- Accelerate construction of approved plants

1,365 MW

- Develop new peaking and renewable plants

460 MW

- **Total 2,330 MW**

- **Conservation**

- State, Fed. & Local Govt. emergency load reduction

658 MW

- Augment existing utility conservation programs

124 MW

- New conservation programs

305 MW

- Demand responsive load

2,510 MW

- Public outreach, 20/20

4,016 MW

- **Total 7,613 MW**



New Generation Outlook

July 1, 2002

- **Potential**

- Increased output from existing plants

796 MW

- Accelerate construction of approved plants

2,865 MW

- Develop new peaking and renewable plants

4,450 MW

- **Total 8,111 MW**

- **Scenario**

- Increased output from existing plants

544 MW

- Accelerate construction of approved plants

2,865 MW

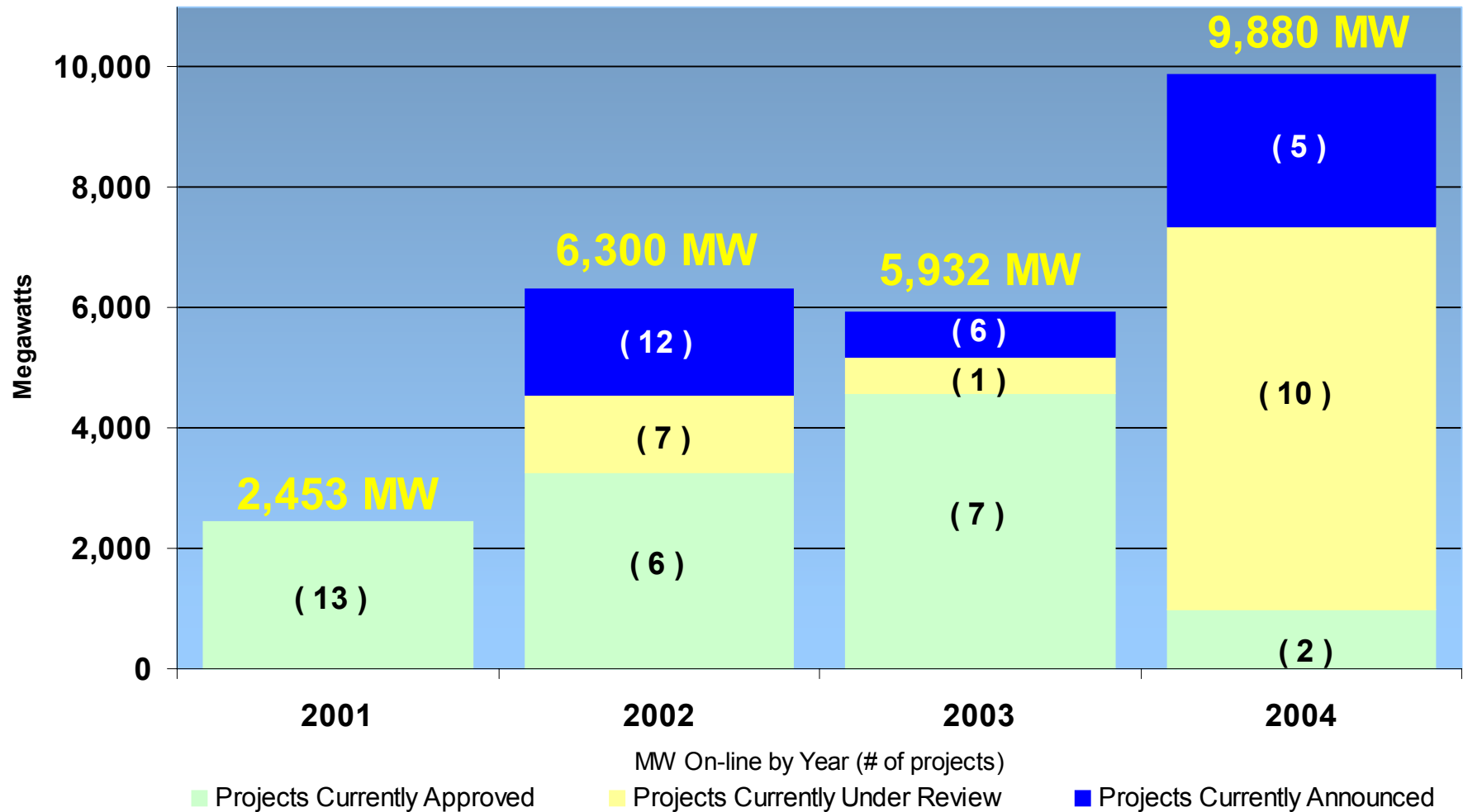
- Develop new peaking and renewable plants

1,335 MW

- **Total 4,744 MW**

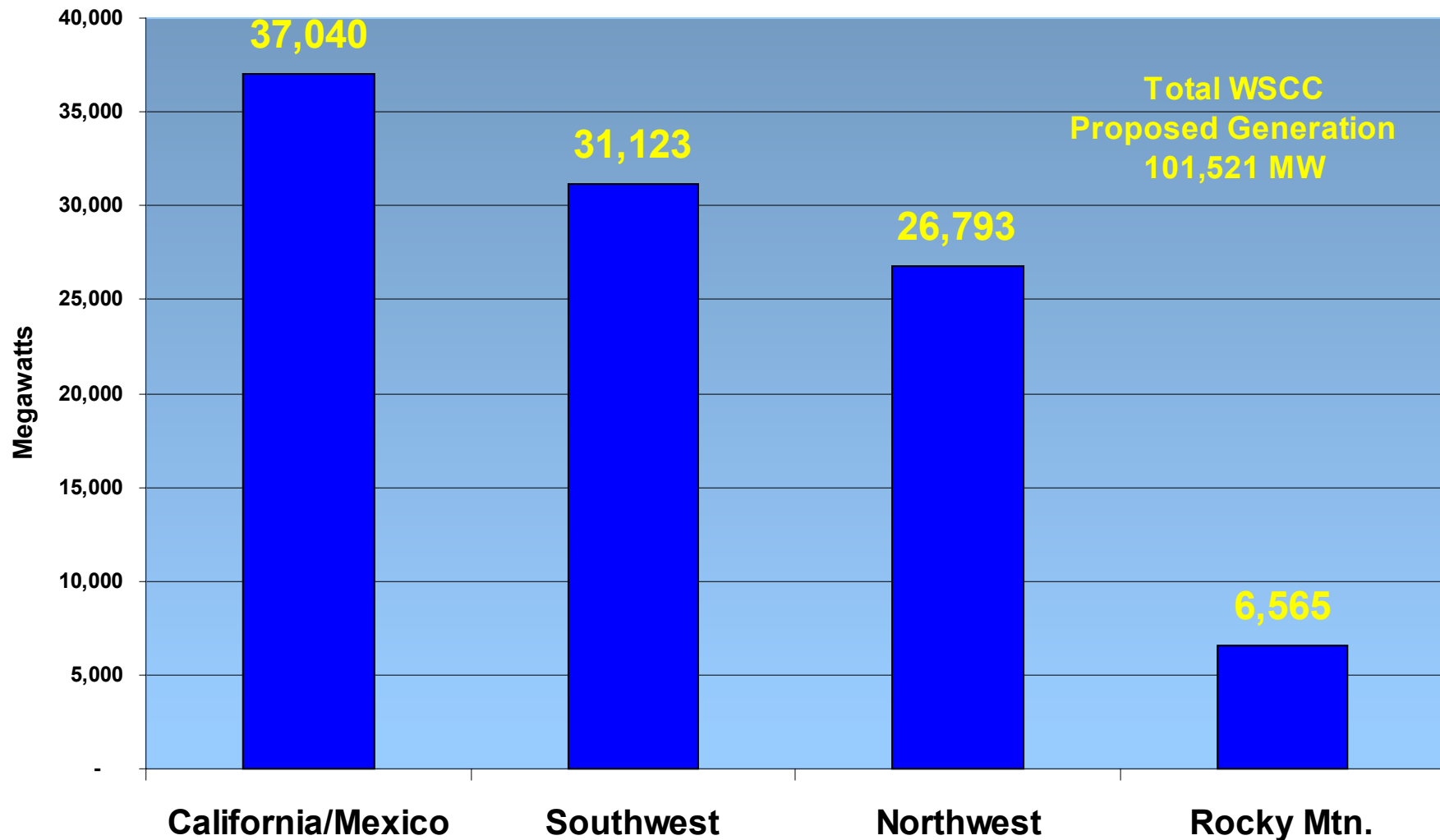


Maximum Powerplant Development Outlook In California





WSCC Proposed Generation By Region





Imports

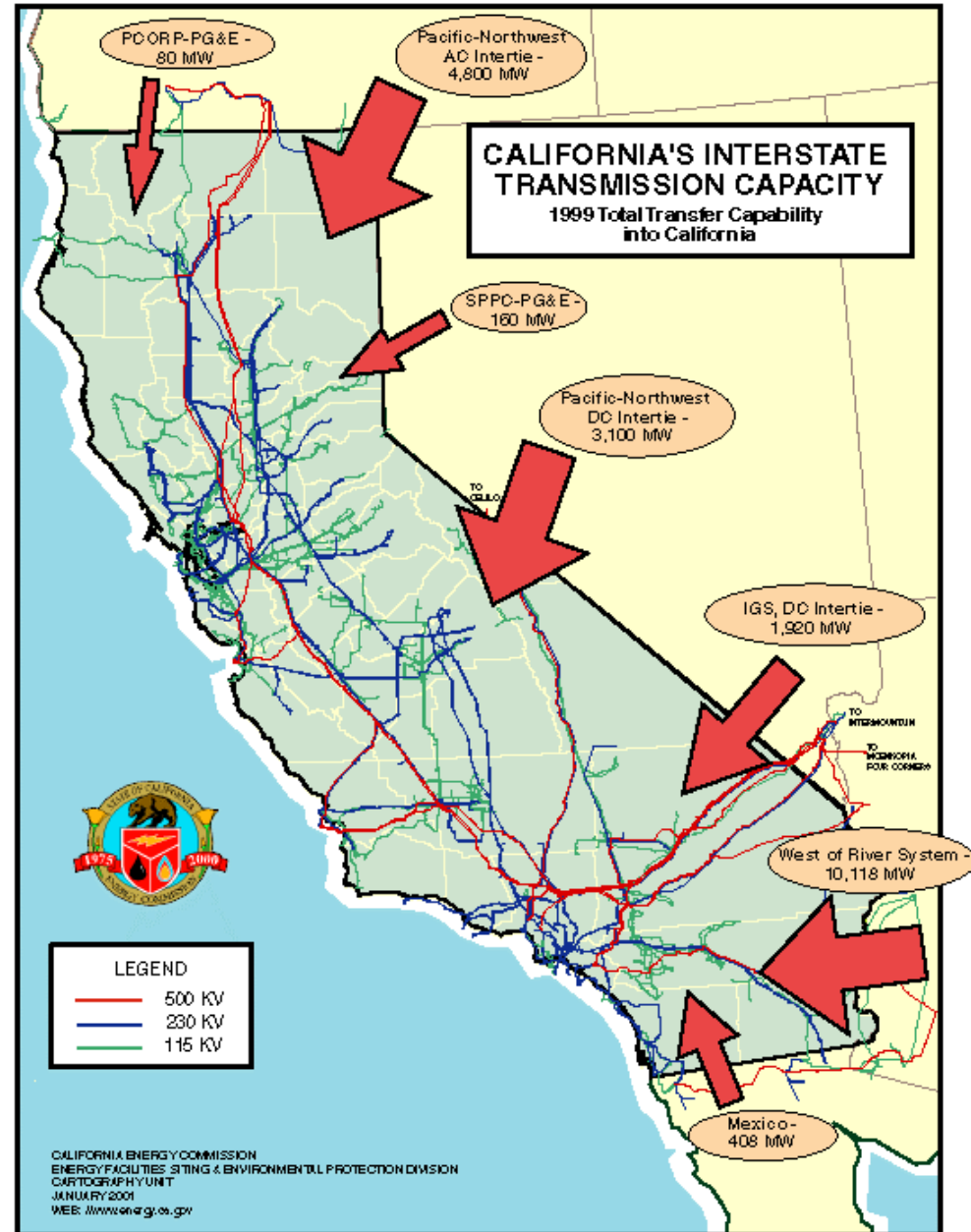
Total ISO Controlled Out-of-State (Dynamic Resources)	1,833
Cal ISO Muni Owned Out-of-State Resources	951
Contracts	1,949
SCE Out-of-Control Area QF Geothermal	440
Firm Exports	(105)
<hr/>	
Total Net Firm Imports	5,068



**Significant Import Capability
into the state.**

7,900 MW from the NW

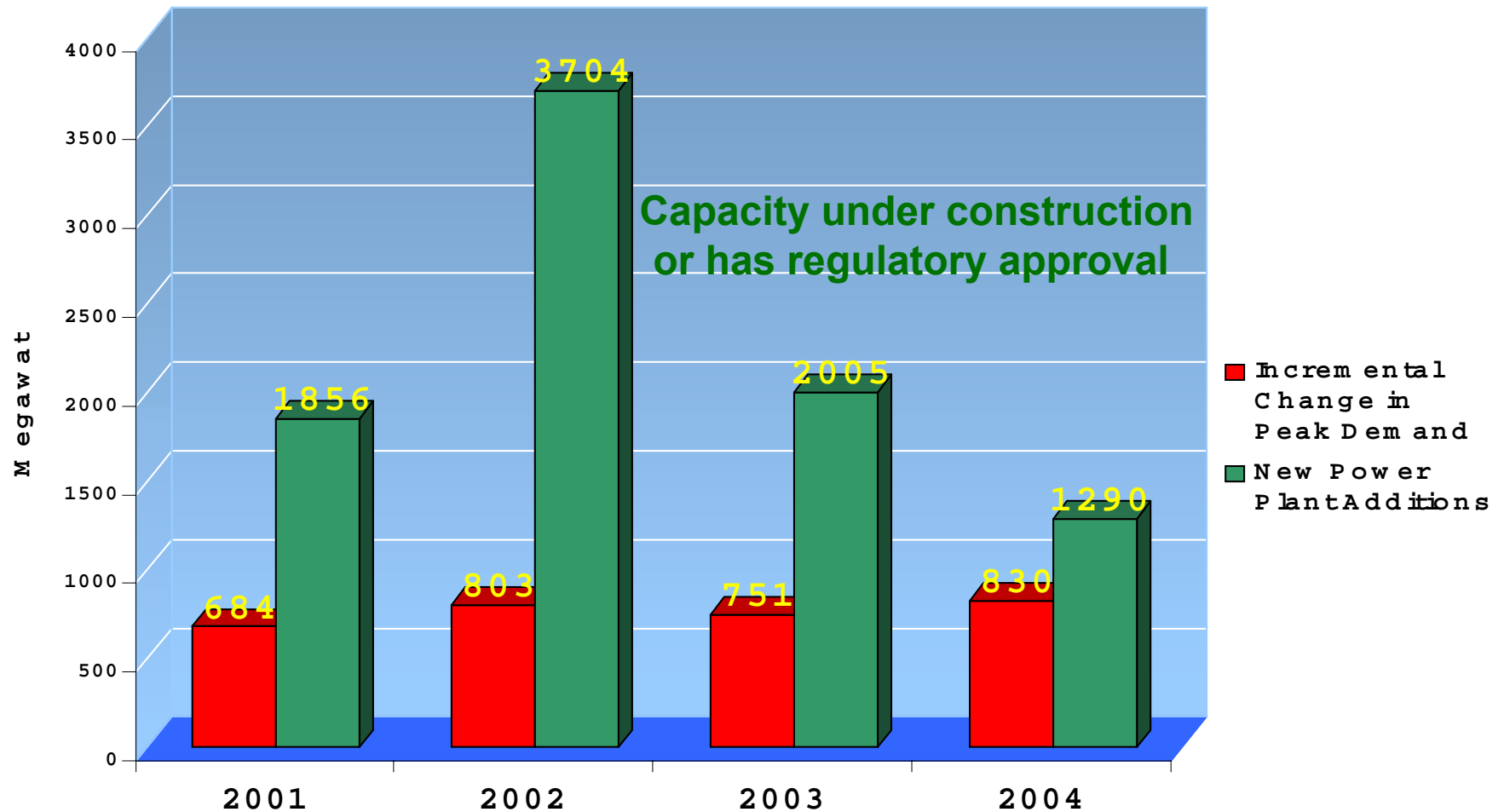
12,000 MW from the SW





Forecasted Growth In NW Peak Demand & Annual New Plant Additions

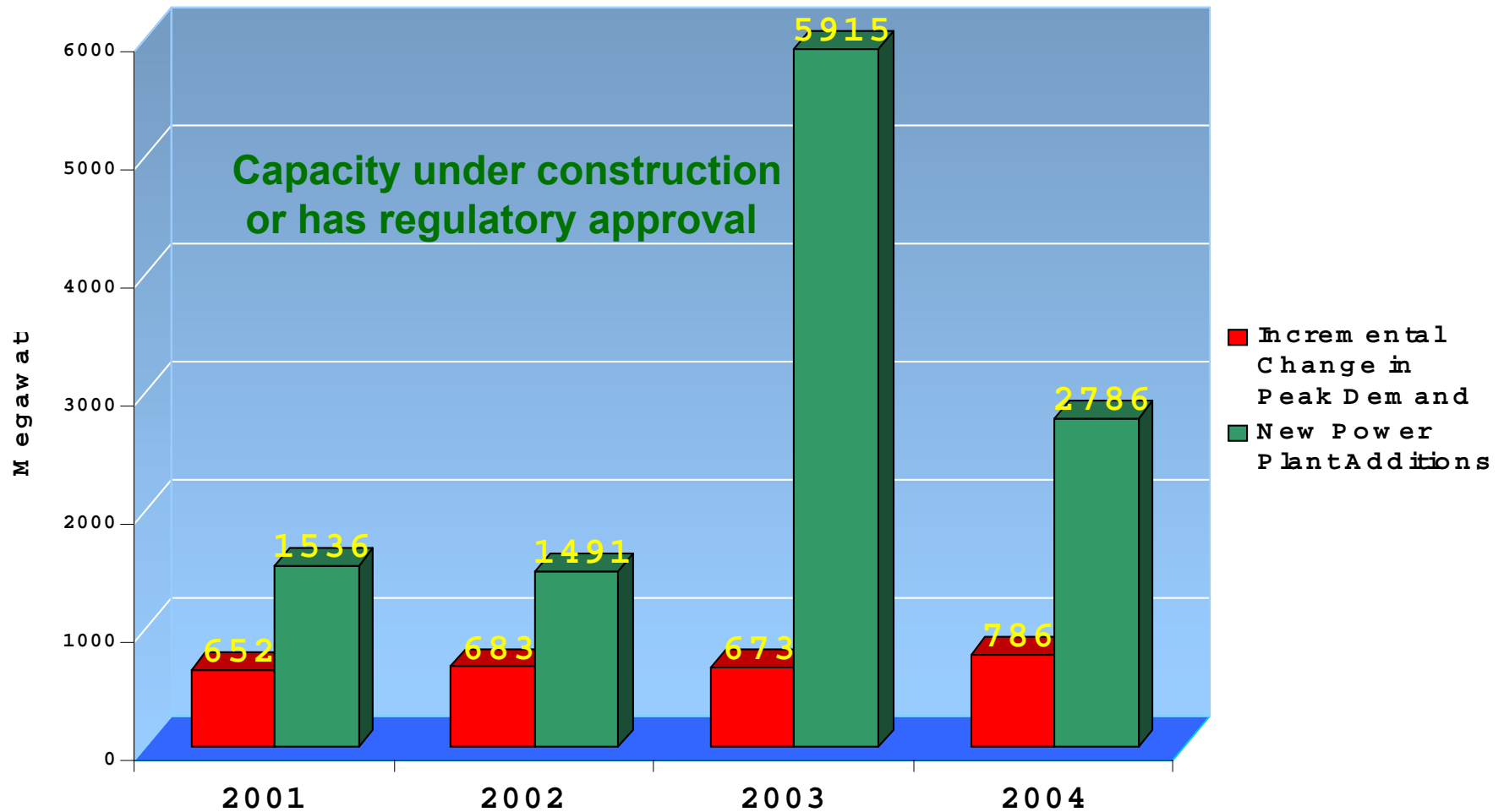
On-Line as of July 1





Forecasted Growth In SW Peak Demand & Annual New Plant Additions

On-Line as of July 1





Conservation/Demand Response Program Outlook

- **August 2001 Actual**

- State, Fed. & Local Govt. emergency load reduction

658 MW

- Augment existing utility conservation programs

124 MW

- New conservation programs

305 MW

- Demand responsive load

2,510 MW

- Public outreach, 20/20

4,016 MW

- **Total 7,613 MW**

- **July 2002 Scenario**

- State, Fed. & Local Govt. emergency load reduction

658 MW

- Augment existing utility conservation programs

124 MW

- New conservation programs

897 MW

- Demand responsive load

3,890 MW

- Public outreach, 20/20

3,500 MW

- **Total 9,069 MW**



New Conservation Programs (MW)

	End of August 2001	Total Reduction Goal
LED Traffic Signals	5	10
Innovative Programs	33	152
Cool Roofs	1	62
State Bldgs. and Public Univ.	59	50
Water/Wastewater	49	50
Municipal Utilities	25	50
Agriculture	19	105
Energy Conservation Assistance Account (ECAA)	1	50
Residential AC incentives and Appliance Rebates	58	123
Low-income Weatherization and Appliances	8	8
Residential and Commercial Lighting Incentives	37	60
Oil and Gas Pumping Efficiency	2	16
Renewable Loan Guarantee	0	21
State Energy Projects	0	40
Mobile Efficiency Brigade	40	100
Total	337	897



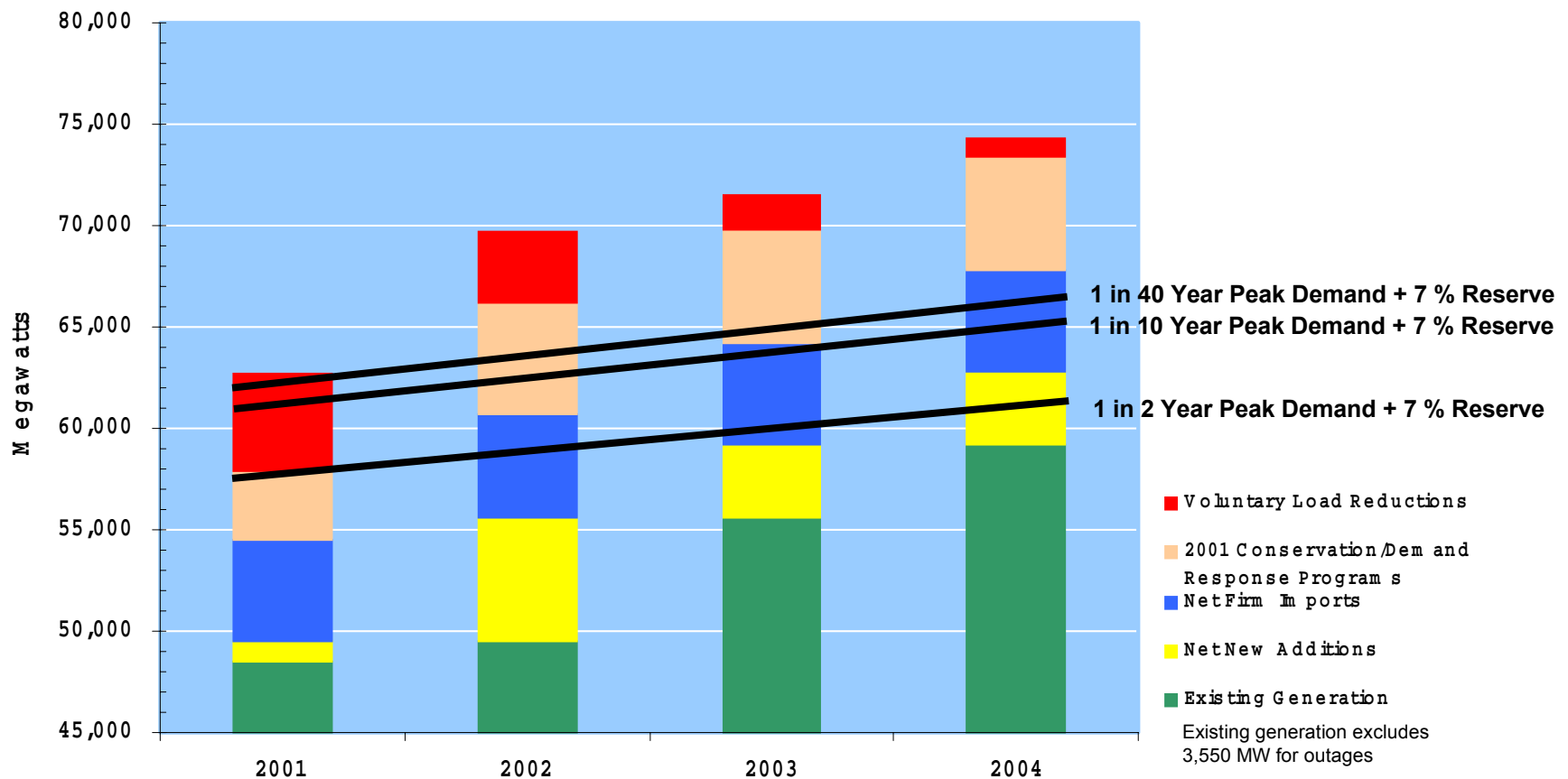
Demand Responsive Load (MW)

	August 2001	Goal July 2002
Real Time Meters	10	1,500
Demand Responsive Building Systems	185	245
AC Cycling	300	300
ISO /CPUC Demand Relief Program (DRP)	700	700
Discretionary Load Curtailment (DLCP)	35	40
Demand Bidding Program	0	279
CPUC Interruptible Tariff Program	1,280	826
Total	2,510	3,890



California Statewide Load/Resource Balance July 2001-2004

**“Maximum Conservation/Demand Responsive Load -
Cautious New Plant Development Scenario”**



August 16, 2001

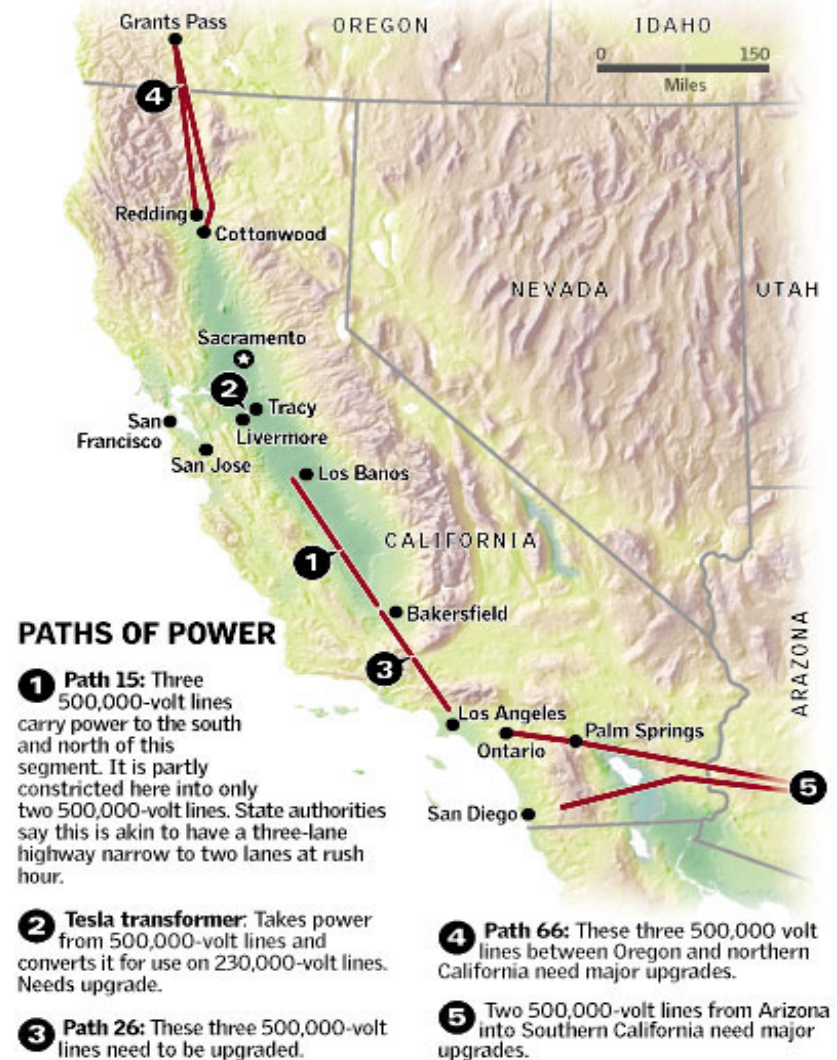


Inadequate Transmission Capacity

- Path 15 limits flows from south to north which contributes to power shortages in Northern California
- Transmission upgrades are vital to a reliable electric system, and to promoting greater competition among generators

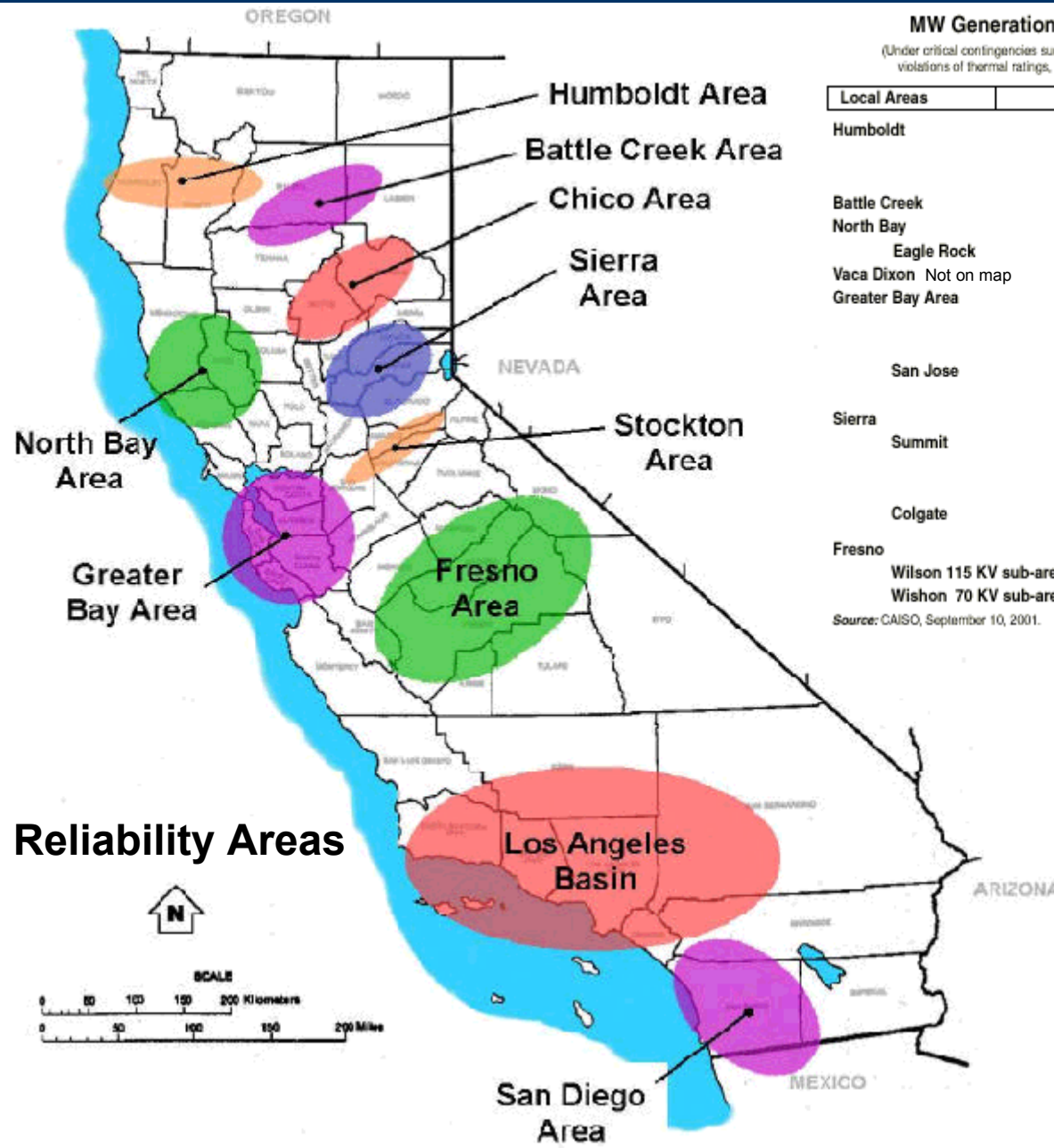
Power bottlenecks

Here are the five most congested spots needing serious improvements along California's network of high-voltage lines, according to the California Independent System Operator. They are ranked in order of seriousness:



Source: California Independent System Operator

MERCURY NEWS



MW Generation Deficiencies in RMR Areas

(Under critical contingencies such as generator or line outages which result in severe violations of thermal ratings, unacceptably low voltage and/or reactive margins.)

Local Areas	2002	
Humboldt	88	The recommended solution is faster clearing times on the 60KV lines, not additional generation. PG&E is working on a project to fix this.
Battle Creek	10	
North Bay		
Eagle Rock	30	
Vaca Dixon	16	
Greater Bay Area		Potential for transmission system fix at the Tesla Substation could reduce RMR needs; equipment expected to be installed during 2002.
San Jose	350	This is the 115KV sub-area between Newark and Metcalf.
Sierra		
Summit	50	Transmission fixes would help this area more than generation additions. PG&E has an approved project for 2003 that would eliminate the most stringent contingency.
Colgate	10	
Fresno		
Wilson 115 KV sub-area	70	
Wishon 70 KV sub-area	10	

Source: CAISO, September 10, 2001.



Summary

- **New generation, conservation programs, and voluntary load reductions turning around supply/demand imbalance**
- **Major Demand/Supply Uncertainties**
 - **Resolution of SCE & PG&E financial problems and the impact on demand from any additional rate increases**
 - **Generators perception of market conditions and whether to proceed with construction plans**
- **Adequate transmission capacity, both within California and between western states, more critical to long-term reliability, and promoting competition among generators**
- **Some “local” reliability areas within the State lack adequate generation**